2017 SHOPP Ten Year Plan
Goal Constrained Performance Targets for Asset Management

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Background

- California Streets and Highway Code (164.6) requires Caltrans to prepare a Ten Year Plan for the SHOPP and submit to the CTC in January 2017.

- Federal Regulation (MAP-21/FAST Act) requires the development of a Transportation Asset Management Plan (TAMP) with National Performance Measures for pavement and bridges.

- The TAMP Requires the implementation of Performance Management which requires performance targets to be set using the National Measures.

- Government Code requires a "robust asset management plan" with performance measures and targets approved by the CTC. Consistent with Federal Law.

- The 2017 SHOPP Ten Year Plan will implement Performance Management in the SHOPP with National Measures for pavements and bridges.

- CTC approval of performance targets prior to January 2017 necessary to build the 2017 Ten Year Plan.

Commission's Prior Asset Management Approvals

- Adopt Good, Fair, Poor performance measures reflecting state goals and objectives
  - Completed March 2015

- Define "focus areas" for Phase 1 of the Transportation Asset Management Plan
  - Pavement, bridges, culverts and ITS Elements
  - Completed in March 2015 with the adoption of the four asset classes

- Approve the framework of the Phase 1 Transportation Asset Management Plan
  - Completed in March 2016

Goal Constrained Target Purpose

- Streets and Highway Code requires that "all rehabilitation needs" be included in the Ten Year Plan. This requires the setting of the upper bound (goal constrained)

- MAP-21/FAST requires targets to establish bounds for a performance gap analysis necessary for asset management.
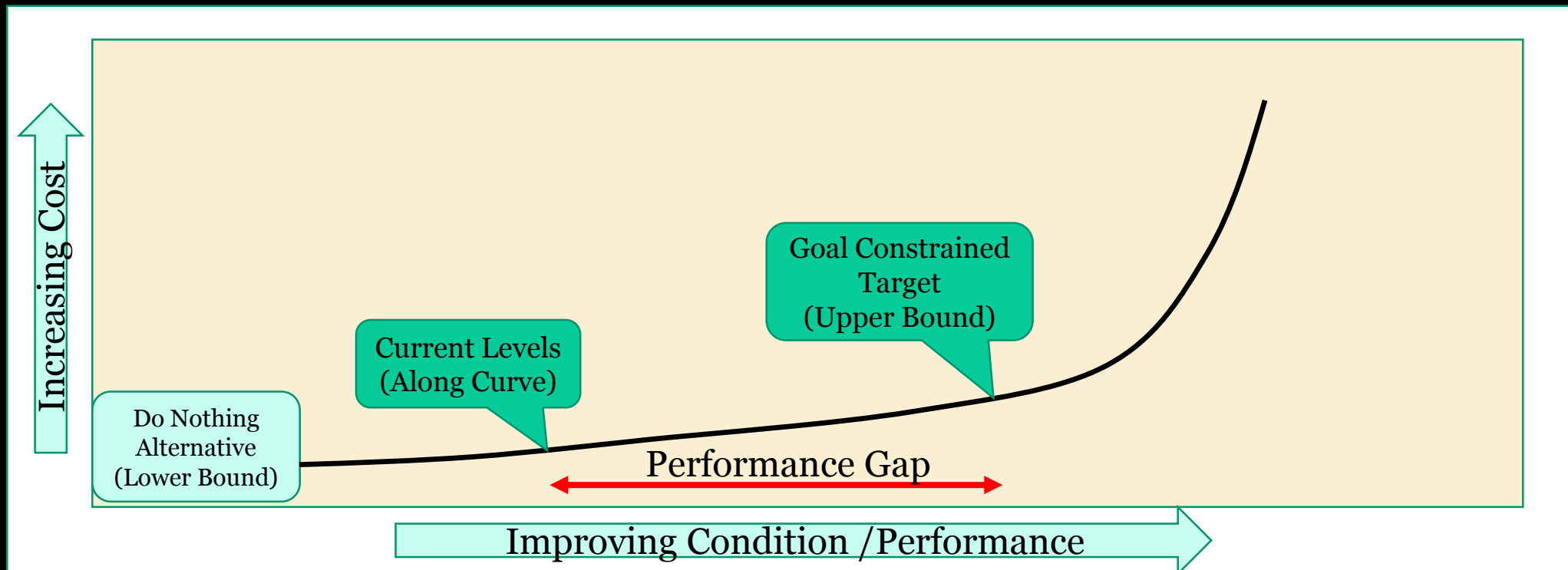
Measuring Asset Condition

| Asset Class	Technical Criteria	Good	Fair	Poor
Pavements – Area in Lane Miles	GOOD = ALL CRITERIA GOOD, FAIR = ANY ONE FAIR, POOR= TWO ARE POOR*			
Roughness**	International Roughness Index (IRI) to measure pavement roughness (in/mi)	< 95	95-170	>170
Cracking	Measures slab cracking in concrete or wheel path cracking in asphalt (%)	< 5	5-10	>10
Rutting	Measures the depth of depressed longitudinal channels in asphalt pavement (in)	< 0.20	0.2-0.4	>0.4
Faulting	Measures the vertical distance on faulted joints in concrete pavements (in)	<0.05	0.05-0.15	>0.15

MAP-21 Criteria

- - Full listing of criteria for the four asset classes is included as an attachment to the book item.

Performance Measure Scales – It's The Same Banana

Legacy

| Good | Major Maintenance | Distressed/Poor |

→ Inventory Needing Work
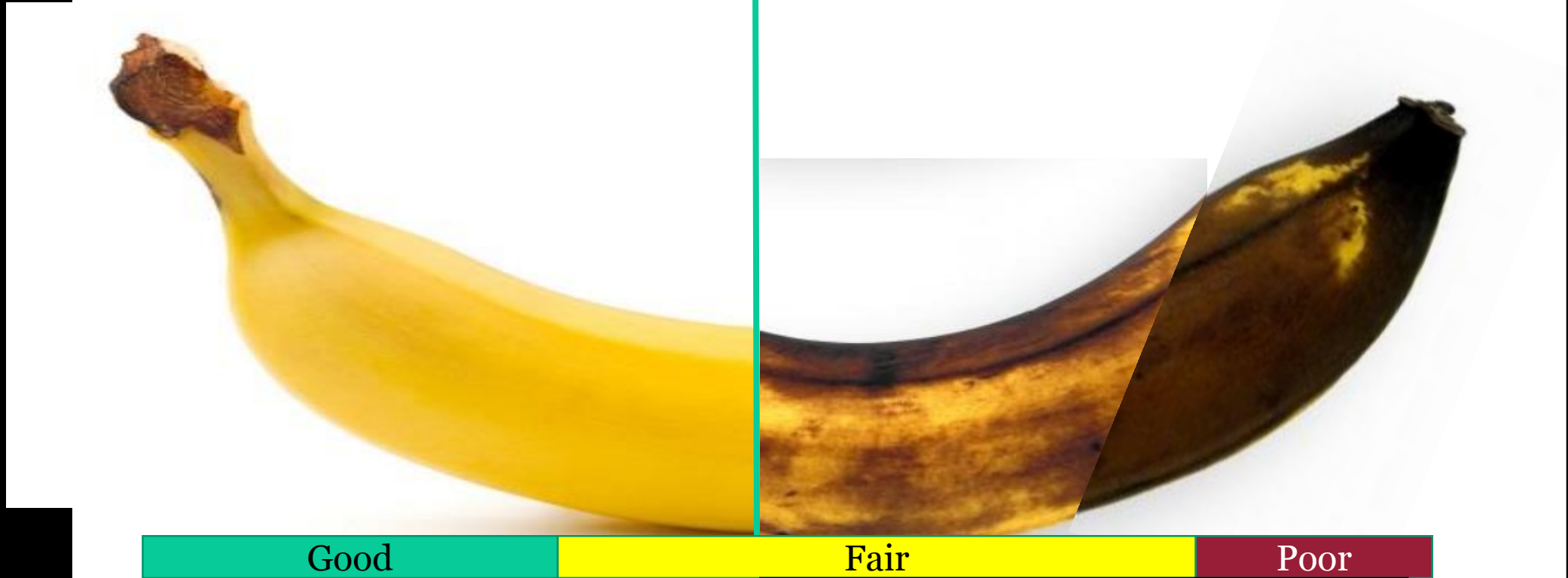
MAP-21

| Good | Fair | Poor |

→ Inventory Needing Work

Target Setting Criteria

- General – Targets consider deterioration rate, rate of inventory growth, long term costs, consequence of inaction (risks) and practical project delivery time frames.

- Poor Targets
  - We would like a zero poor target, but this is not achievable.
  - Therefore targets are set at the practical minimum percentage given the factors noted above.

- Fair Targets
  - Performance-cost curves developed to understand the relationship of these factors
  - Target evaluation considered existing conditions, rate of needs identification, performance-cost curves, deterioration rates and typical delivery timeframes to establish the recommended target condition level.

Pavement Classes

Class 1 Routes – Red Lines
Class 2 Routes – Blue Lines
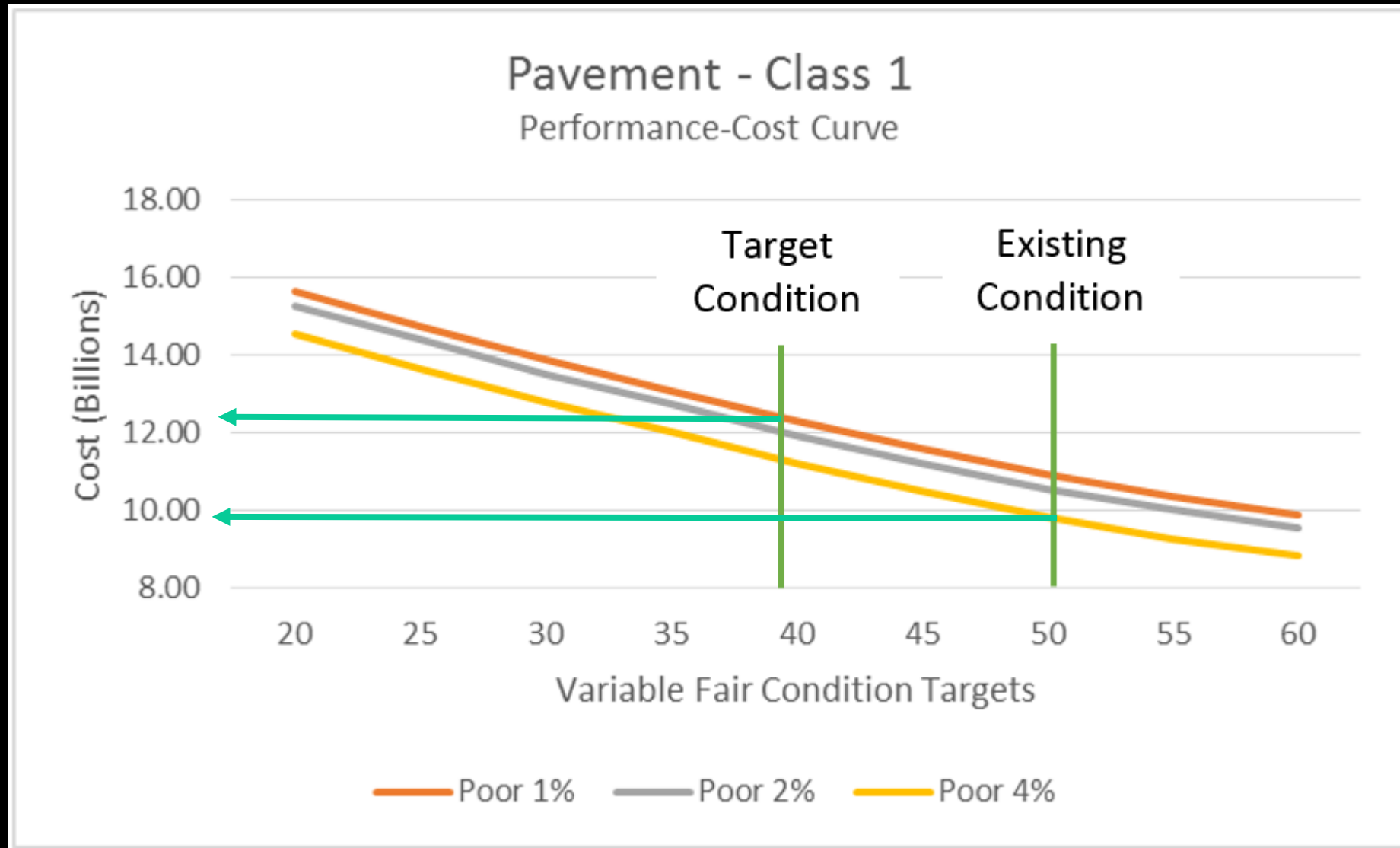Class 3 Routes – Green Lines

Recommended Performance Targets

	MAP -21 Good		MAP-21 Fair		MAP-21 Poor		Estimated Annual Costs (Billions)
	Current	Target	Current	Target	Current	Target	
Pavement (Class 1)	45%	60%	51%	39%	4%	1%	1.25
Pavement (Class 2)	35%	55%	58%	43%	7%	2%	0.49
Pavement (Class 3)	38%	45%	54%	53%	8%	2%	0.12

- Pavement area separated into classes to allow for tailoring of investment by use characteristics
  - Class 1 routes are the busiest routes in the system and include all interstates, all principle arterial routes and urban freeways and expressways.
  - Class 2 routes include rural freeways and expressways and minor arterials.
  - Class 3 routes include major and minor collector routes.

Cost Performance Curve - Example

Pavement - Class 1
Performance-Cost Curve

Target Condition

Existing Condition

Poor 1% Poor 2% Poor 4%

Cost (Billions)

Variable Fair Condition Targets

Recommended Performance Targets

Asset Class	MAP -21 Good		MAP-21 Fair		MAP-21 Poor		Estimated SHOPP Annual Cost (Billions)
	Current	Target	Current	Target	Current	Target	
Bridge Condition	75%	83.5%	21.7%	15%	3.3%	1.5%	$ 0.548
Culvert Condition	65%	80%	23.5%	10%	11.5%	10%	$ 0.261
ITS Element Health	64.5%	90%	NA	NA	35.5%	10%	$ 0.194

Next Steps

- Use the performance targets to develop the 2017 SHOPP Ten Year Plan needs

- Deliver the 2017 Ten Year Plan to the Commission in January 2017

- The 2017 Ten Year Plan will define the total goal constrained SHOPP need and recommended an investment plan for the available SHOPP funds

- The 2017 Ten Year Plan will fully implement the Performance Management requirements of MAP-21

- The 2017 Ten Year Plan will guide future planning and SHOPP programming

- Monitoring of performance relative to targets

Thank You